U.S. Fish & Wildlife Service
Columbia River Gorge National Fish Hatchery Complex
Annual Report - Fiscal Year 2014

Spring Creek National Fish Hatchery
Underwood, Washington

Mark A. Ahrens

February 10, 2015

Mark A. Ahrens, Hatchery Manager **Date**

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The front page photos show Spring Creek spawn building and visitor center February 2014, and a great shot looking east up the Gorge on a snowy winter day.

2014 Annual Report Narrative

Introduction

The U.S. Fish and Wildlife Service's Spring Creek National Fish Hatchery (NFH) produces tule fall Chinook salmon (*Oncorhynchus tshawytscha*) for the Columbia River Basin as mitigation under the Mitchell Act of 1938 and the Flood Control Act of 1950.

The hatchery was authorized by Special Act 24 Stat.523, March 3, 1887 and Special Act 30. Stat.612, July 01, 1891 and placed into operation in 1901 primarily to support the commercial fishing industry. The hatchery was reauthorized by the Mitchell Act (16 USC 755-757:52 Stat.345) May 11, 1938 and amended on August 8, 1946, (60 Stat.932) for conservation of fishery resources in the Columbia River. The hatchery was remodeled in 1938 to mitigate for Bonneville Dam (Mitchell Act) and was expanded to its present size in 1972 by the U.S. Army Corps of Engineers (ACOE) for mitigation under the John Day Dam Flood Control Act of 1950.

Spring Creek NFH is located on the Columbia River one mile west of the mouth of the White Salmon River in Underwood, Washington and approximately sixty miles east of Portland, Oregon. The hatchery sits on 60.21 acres in Skamania County, Washington at river mile 167. Hatchery facilities include: a combined visitor center and spawning building, administration building, and feed storage building with crew room, forty-four Burrows ponds, eighteen filter-beds, pollution abatement pond, fish ladder, several service buildings and four houses for hatchery employee residence. The primary water supply for the hatchery comes from a series of five unnamed springs located at the base of the basalt cliffs north of the hatchery. A production water well is also utilized during incubation and early rearing stages.

The hatchery produces 10.5 million tule fall Chinook salmon annually for an on station release. These fish are native to this part of the Columbia River and originally spawned in the White Salmon River one mile east of the hatchery. From 1901 to 1938 tule fall Chinook were trapped by seining the mouth of the White Salmon River. Collected eggs were transported to Spring Creek NFH for incubation and fingerlings were released at both the hatchery site and in the White Salmon River. After construction of Bonneville Dam in 1938 adult collections in the White Salmon River became very difficult, and by 1964 a sufficient number of adults were returning to the hatchery so collection of adults in the White Salmon River was discontinued. Today, the tule fall Chinook is an indicator stock for the U.S. - Canada Pacific Salmon Treaty, providing valuable information on all salmon stocks that inform harvest management decisions. This stock is also important for meeting the U.S. Government Treaty (1855) obligations and trust responsibilities to Native Americans. It helps to support an important commercial and recreational ocean fishery as well as a lower Columbia River fishery, and provides mitigation for habitat lost due to construction of dams.

Prior to 2009 Spring Creek had been the only hatchery producing tule fall Chinook above

Bonneville Dam. Through Memorandum of Agreement with co-managers (2008, detailed in the next section), tule fall Chinook production was diversified for a time by incorporating Little White Salmon NFH (LWSNFH) where marked tule fry were transferred for acclimation to achieve a 1.7 million smolt release goal. The first release from there took place in 2009, and the last in the spring of 2013. This brought a second facility above Bonneville into the tule production mix for a brief window as part of the reprogramming of Spring Creek tule production which also incorporated Oregon Department of Fish and Wildlife's (ODFW) Bonneville State Fish Hatchery (SFH) which has received eyed tule eggs each year since 2008 to achieve a 2.8 million smolt release goal. In the spring of 2014 they received the 1.7 million marked fry previously shipped to LWSNFH from 2009-2013. That transfer marked the final tule egg and fry transfers from SCNFH since 2009 as part of the reprogramming that reduced Spring Creek NFH production by a 4.5 million to a 10.5 million smolt release goal.

Spring Creek also operates a small substation on the White Salmon River known as the Big White Ponds. Constructed in the early 1950s, the facility sits on 42 acres that are 1.25 river-miles upstream from its confluence with the Columbia River. The purpose of the facility was for adult trapping and egg collection for tule fall Chinook salmon. After 1964, when adult trapping was discontinued, the facility was used to raise additional tule fingerlings for release into the White Salmon River. Other species, such as brown trout, chum, Coho and spring Chinook salmon have all been reared at the facility and released into the White Salmon River. The last release from the facility took place in 2002, when 170,500 spring Chinook salmon were released. The substation consists of a water intake structure and pipeline, two raceways, a diversion rack in the river and a service building with water-rights of 30cfs from the White Salmon River. The facility has not been operated for traditional fish production purposes since 2002 due to water intake screening compliance issues. But in the fall of 2008 and 2009 it was operated as an adult collection site as part of a tule fall Chinook salvage plan study. In 2011 the Big White Ponds played a key role in the fish salvage operations leading up to the breach of Condit Dam on Oct. 26th of that year. Post-breach in 2011 the site was inundated with debris that buried it so thoroughly you might not know it had been there. Through that spring and summer of 2012 JR-Merit, the contractor in charge of dam removal and all things related, proceeded gradually with the clean-up operations and did an outstanding job. With modifications, this facility could play a role in restoration of native species if needed, now that Condit Dam has been removed. The removal opened access to 16 miles of additional salmon habitat.

Station Operations

Current Fish Production Program Goals – Fiscal Year 2014

Spring Creek NFH produces tule fall Chinook salmon (*Oncorhynchus tshawytscha*) for the Columbia River Basin as mitigation for Bonneville Dam under the Mitchell Act of 1938 and John Day Dam under the Flood Control Act of 1950. The current production programs at Federally-funded mitigation hatcheries in the Columbia River Gorge are guided by specific fish production

goals, identified by the United States v. Oregon Production Advisory Committee. The primary goals of the Advisory Committee, and the parties they represent, are to rebuild weak fish populations to full productivity and fairly share the harvest of upper-river runs between treaty and non-treaty fisheries in the ocean and Columbia River Basin, as well as to more appropriately balance species distributions and their rearing/release locations with their endemic regions. As a means to accomplish this purpose, the Parties use protection authorities, enhancement efforts, and artificial production techniques as well as harvest management to ensure that Columbia River fish runs continue to provide a broad range of benefits in perpetuity. Fish production goals specific to Spring Creek NFH were modified in a Memorandum of Agreement (2008), extended to 2013, and fully implemented in 2014, by the Service, the ACOE, Bonneville Power Administration (BPA), and NOAA's - National Marine Fisheries Service (NMFS). This was the final year of the agreement and includes the following:

- In late 2014 (BroodYear14 (BY14)), and rearing into 2015, 10,500,000 is the total target for smolt release of tule fall Chinook to be produced from adult fish returning to Spring Creek NFH in this final year of the reprogramming agreement, and will be the production level going forward.
  - **Release 2015 >** 10,500,000 tule fall Chinook salmon sub-yearlings (BY14) released on site at Spring Creek NFH.
  - **Ended 2014 >** the last 1,800,000 tule fall Chinook salmon (BY13) sub-yearlings transferred to Bonneville SFH (Mar. 2014) for acclimation and an onsite release of 1,700,000. These fish, in the previous four years of the agreement were sent to Little White Salmon NFH.
  - **Ended late 2013 (early FY14) >** the last 3,000,000 tule fall Chinook (BY13) salmon eyed-eggs transferred to Bonneville SFH, to achieve an onsite release of 2,800,000.

A more detailed description of Spring Creek NFH's production goals are provided in the Comprehensive Hatchery Management Plan (CHMP) and the Hatchery and Genetic Management Plan (HGMP) for Spring Creek NFH.

The station update quick summary can be accessed through the following web-link:
http://www.fws.gov/gorgefish/springcreek/reports/sc2014.final.pdf

The station annual reports can be accessed through the following web-link:
http://www.fws.gov/gorgefish/springcreek/reports.html

Fish Production

Tule Fall Chinook Salmon Collection and Spawning: Return Year 2013

Spawning of adult tule fall Chinook at Spring Creek NFH occurs at the close of the fiscal year. Therefore the fish produced in FY2014 are spawned from fish collected in our return year 2013 (RY13). The fish return began August 22, 2013 and concluded on September 27, 2013. From this

spawning a total of 18,795,937 eggs were taken from 3,861 females, over 10 takes (September 16 – September 27).

The following table summarizes the Return Year 2013 spawning season at Spring Creek NFH:

Species	**No. Adult Fish Needed (Escapement Goal)**		**No. Adult Fish Spawned**		**Eggs Collected**	**% Eye-Up**
	Male	*Female*	*Male*	*Female*		
Tule Fall Chinook	4,000	4,000	2,857[1]	3,861	18,795,937	94.6
[1] Includes 368 jacks						

A more detailed summary of returns (RY13) and spawning for BY13 is available in the Five Year Hatchery Production Summary, and the Production Year Report provided at the end of this report on page 21.

Tule Fall Chinook Salmon Rearing: Brood Year 2013, Lot Number 78

Rearing conditions were excellent for production, temperatures did not fluctuate greatly, and disease incidents remained low. Survival from spawning to eye-up was down from the prior year 96.6% to 94.6% this year and survival from eye-up to hatch was 90.3%. Female fecundity was higher than our estimated pre-spawn values, but slightly lower than the prior year with an average of 4,868 eggs per female. Despite spawning less days, high fecundity overall resulted in a surplus of 1,279,754 eggs which were culled prior to ponding. Calculating fecundity using average female length has improved the estimated number of eggs taken, and we continue to work on future improvement of the regression formula accuracy.

Ponding began December 16 and was completed on December 24. The fish took to the Skretting BioVita dry starter feed #0 very well as always, and growth rates were rapid as expected. Survival from hatch to feeding was 99.7%. Average size of fry at ponding was 1,186 fish per pound, with a total of 12,943,952 fish ponded. The overall survival from ponding to release was 97.25%, remaining within the five year mean. Detailed information on weight gain, feed expended, cost, and survival rate are provided in the Hatchery Production Summary table included in this report on page 20.

The Columbia River Fisheries Program Office (CRFPO) Hatchery Marking Team marked all fish transferred to ODFW's Bonneville SFH, as well as all fish released on site at Spring Creek NFH. The marking operations went well, marking began February 19 and completed on April 10. The April release included 8,980 PIT-tagged fish and the May release included 5,995 PIT-tagged fish. Funding for this was provided by CRFPO-Hatchery Marking Team funds.

A more detailed summary of BY13 rearing and production is available in the Hatchery Production Summary (Intensive Culture) provided at the end of the report on page 20.

Tule Fall Chinook Salmon Distribution: Brood Year 2013, Lot Number 78

During fiscal year 2014, a total of 15,586,307 tule fall Chinook salmon were produced at Spring Creek NFH. Of these fish, 3,001,840 were transferred as eyed-eggs to Bonneville SFH on October 25, 2013 where they were reared and eventually released on site as sub-yearlings. As described by our program production goals, another 1,816,227 of these fish were transferred as sub-yearlings to Bonneville SFH on March 5, and subsequently released from there after acclimation in April 2013. Sub-yearling tule fall Chinook were released on site at Spring Creek NFH in two release groups, the April release (Apr. 11) of 6,169,418 fish, and May release (May 6) of 4,598,822 (totaling 10,768,240).

An additional 1,600 eyed-eggs from the production total were provided to the Information and Education's "Salmon in the Classroom" project. These eggs are "adopted" by 16 classrooms in local schools. In the classrooms students help raise the young fish, learning about salmon life history and biology, completing the life cycle process by releasing their "adopted" salmon.

A detailed summary of these distributions and transfers is available in the Fish and Fish Egg Distribution Summary provided at the end of this report on page 20.

Tule Fall Chinook Salmon Fish Health

Brood year 2013 was another great year for fish health at Spring Creek NFH. The fish health lab tested juvenile fish throughout the rearing season for various pathogens and disease; nothing was detected the duration of the rearing season. For the RY14 adult fish that were tested, only one female tested positive for infectious hematopoietic necrosis virus (IHNV), a disease that primarily attacks the spleen and kidney but also other tissues in fish.

A more detailed summary of fish health is available in the Incidence of Disease in Adults provided at the end of this report on page 22.

Tule Fall Chinook Salmon Collection and Spawning: Return Year 2014

The fish ladder was opened August 25, 2014, with the expectations of a large run with a larger than normal component of upriver bright fall Chinook (URB) interceptions. The total return for RY14 was 31,801 which was close to original pre-season estimates. In-season adjustments to the predicted numbers were regularly updated and provided to us throughout the run as PIT-tagged fish were returning over Bonneville Dam. The ladder was closed on October 9 remaining open longer than traditional due to steady although low numbers of tule fall Chinook still arriving. The extended operation was requested from Vancouver FPO as a means to help capture some of the extremely high number of hatchery URB's from over-imposing on wild populations, which is in keeping with the Biologic-Opinion for Spring Creek NFH. The run was comprised of 8,183 males, 13,023 females, and 10,595 jacks, or 25.7%, 41.0%, and 33.3%, respectively.

Spawning began on September 16 and ended October 1 with nine spawn days completed. A total of 12,854,927 eggs were taken from 2,712 females.

The following table summarizes the Return Year (RY) 2014 spawning season at Spring Creek NFH:

Species	**No. Adult Fish Needed (Escapement Goal)**		**No. Adult Fish Spawned**		**Eggs Collected**	**% Eye-Up**
	Male	*Female*	*Male*	*Female*		
Tule Fall Chinook	3,000	3,000	2,042[1]	2,712	12,854,927	96.7
[1] Includes 187 jacks						

This year is the first with new production goals for BY13, as mentioned previously, being the last where fish are transferred off station from Spring Creek NFH. Ponding will be conducted slightly differently in the future as a result of the modest increase in available rearing space on site for the starting phase. The result will allow us the flexibility to use 21 ponds for the April release group, and 13 for the May release group, leaving 10 ponds open which will assist marking efficiency and allow the auto-trailers to reach full operational level much sooner than in prior years. Each release group has around 330,000 fish per pond, with the May release being redistributed for pond-density reductions to 16 ponds each with 260,000 fish post-marking. These loading levels will easily provide for achieving the 6.5 million April release and 4.0 million May release goals for a total of 10.5 million as our current release goal.

A more detailed summary of Return Year (RY) for 2014 is available in the Wild Brood Stock Summary provided at the end of this report on page 21.

Funding

The majority of funding for Spring Creek NFH is reimbursable; provided by the ACOE, under John Day Mitigation; and NMFS, through the Mitchell Act. Funding is also provided by the Service to address maintenance issues. Spring Creek summary for Fiscal Year (FY) 2014:

Fund Source	Spring Creek
NMFS – Mitchell Act	$428,300
COE – John Day Mitigation	$693,101
USFWS Deferred Maintenance	49,278
Total	**$1,170,679**

Fish hatchery expenditures typically focus on three critical areas and include staff salaries, fish food, and maintenance of all facilities including keeping an adequate and healthy rearing environment. Salaries and fish food alone comprised 59% of the Complex budget during FY13 (salaries 50.1%; fish food 8.9%). Spring Creek budget figures are also heavily influenced by electrical use incurred with the water reuse pumping system. For FY14 electricity use accounted for 8.8% of the Spring Creek budget while salaries and fish food were 54.7% (salaries 47.5%; fish food 7.2%).

Staffing & Personnel Changes

The overall staff at Spring Creek is comprised of 7 positions, with 5 positions filled as of the end of FY14:

Spring Creek NFH (organization 13255)

Mark Ahrens	Hatchery Manager	GS-482-12	10/1/13 – 9/30/14
Mathew Maxey	Fish Biologist	GS-482-09	10/1/13 – 9/30/14
Mark Doulos	Maintenance Mechanic	WG-4749-08	5/5/13 – 9/30/14
Vacant	Maintenance Worker	WG-4749-08	10/1/13 – 9/30/14
Scott Zirjacks	Fish Culturist Leader	WL-5048-05	10/1/12 – 9/30/13
Vacant	Fish Culturist	WG-5048-05	5/4/13 – 9/30/14
Chris Hankin	Fish Culturist	WG-5048-05	10/1/13 – 9/30/14

Personnel Changes

On May 04, 2014 Mark Doulos was promoted to the position as the maintenance mechanic that had been vacant since August 2013. Larry Zeigenfuss, Manager of Carson NFH and Mark Ahrens, Manager of Spring Creek NFH teamed up to conduct resume reviews and interviews for

the position in March. On April 14 approval for the selection was received from our Human Resources Office. There were 164 eligible applicants reviewed by Human Resources from which they forwarded the 32 best-qualified applicants. Among that group were many very well qualified and strong candidates. After the thorough resume reviews and candidate interviews, Mark Doulos stood at the top, and accepted the position. He has excellent mechanical and maintenance skills along with outstanding fish culture and hatchery experience, a combination that suits the position extremely well. The position will be taking care of maintenance needs and system operations at Spring Creek, but the position description was updated to expand maintenance responsibilities outward to assist the rest of the Complex. It is one more of many steps forward in more collaborative work among the Gorge facilities as well as the three maintenance positions in the Complex, serving all five hatcheries.

Work Details

On June 9 Mark Ahrens began a lenghty term serving concurrently as both Spring Creek NFH manager, and acting-manager for Little White Salmon (LWS) NFH to cover for the planned maternity leave of Casey Risley. On August 26, 2014 however, Casey Risley chose not to return to work, and resigned as the LWS manager which extended the need for coverage well past the end of the planned leave she was due to return from in early September. So, into the fall spawning season he continued on with LWS which began its spawning operations for Upriver Bright fall Chinook production. Activities throught the five months were substantial and challenging, including coordination of the ongoing oak habitat restoration contract, domestic water system inspections from both Washington State Department of Health and also Department of Ecology, Spill Prevention Plan inspections from R1 Safety, quarters rehab contract work, fish ladder operations, regular spawning activities both at LWS and Spring Creek, egg collection for Carson Depot Springs, egg collection for the Yakama Nation Klickitat Hatchery program, collection for ODFW/Umatilla, and normal day to day operations.

Meetings and Events

The Hatchery Evaluation Team (HET) met twice during the year, March 28th and August 30th, to discuss hatchery operations and ongoing and new studies. The HET is the forum used to ensure that the hatchery is operating in a manner consistent with its stated goals. The HET is made up of representatives from all of the Columbia River Gorge NFH Complex stations, Lower Columbia River Fish Health Center, CRFPO, and Abernathy Fish Technology Center. These meetings serve an extremely vital role within the Complex and with our Service partners. There are very beneficial and lively discussions on all variety of operational issues with fish rearing including; updates on studies, operational needs, and fish health status. It never fails to be a rewarding get together and serves a valuable role within our fisheries management mission.

The Hatchery Coordination Team (HCT) meeting was last held on August 15, 2013. Staffing shortages and extra duty coverages within both our Complex stations and with our partners as

well have pushed a meeting into scheduling for spring 2015 once a Complex Manager is in place. The HCT is made up of core HET members and also operational and stakeholder partners of the hatchery. The annual meeting serves to update partners and funding agencies on hatchery operations and program accomplishments. For this year it was a dual meeting incorporating Little White Salmon NFH into the meeting to address interests among partners regarding the John Day/the Dalles Dam mitigation and the Spring Creek reprogramming which heavily involves both programs. Attendees included members of the Spring Creek and Little White Salmon HET's as well as ACOE, NMFS, Yakama Nation Fisheries Program, WDFW and ODFW. This forum is equally valuable as a tool with which to stay connected and maintain effective and productive communication.

A major event of the fall season 2014, in addition to adult salmon returns and spawning operations, was an expedition by the National Conservation Training Center (NCTC) video production team. The film crew was in the region from September 14 through September 25, to capture video footage of spawning and hatchery operations, Abernathy Fish Technology Center, CRFPO and outreach work in several fisheries programs in the Pacific region. The Service is extremely limited in the amount of video it has on hatcheries and especially hatcheries in the Northwest. Many past video footage projects were contracted out, and the Service has later been required to pay royalties for use of footage obtained. This project was coordinated in the effort for the Service to obtain high quality video content that will be Service-owned for instructional use, social media, informational and educational services, new employee orientations, and general hatchery use. Gorge Complex staff worked hard in coordinating movements for the film crew, as well as preparing a bunkhouse at the Willard NFH in time for the NCTC staff arrival. The bunkhouse is available for future use with work crews or employee details. We hope to see the efforts of the video production teams' work, and the work by the Complex staff in 2015. We may even see future requests for additional projects.

Other Projects and Activities

Government Shutdown

Spring Creek, along with the whole of the CRGNFH-Complex, endured the government shutdown which began October 1 and ended October 17. By virtue of the mitigation mission we serve, and the non-appropriated nature of reimbursable funding provided by the Army Corps of Engineers, we are classified as -permanently funded-. This enabled operations to continue as normal although with an acute awareness of the unfortunate circumstances for so many dedicated colleagues and other federal employees nationwide. It was a surreal experience we hope not to have to relive.

EPA Notice of Intent – site visit and meeting

On November 2, 2013 we received written notice from the EPA – Region 10 in Seattle, and permit manager Michael Lidgard advised that it was time to reapply for our National Pollution Discharge Elimination System (NPDES) Permit to discharge which is due to expire July 31, 2014. The first step was to submit our Notice of Intent (NOI) which is the method by which we reapply for the permit. On December 5 Catherine Gockel of the EPA-Office of Water and Watersheds visited the Complex facilities to get familiar with them. She is tasked with permit writing for the renewal of NPDES permits for hatcheries in Washington State. At Spring Creek we provided a walking tour of all relevant fish-production systems, discussed all operations, and Catherine took reference pictures. It was a very productive meeting and we were also able to explore sampling and reporting challenges, especially regarding guidance in the current permit covering the chlorine limits. Catherine said nearly all stations she's visited had the same concerns about the very low level of detection required. She's currently in the permit writing process and hopes to address concerns, and streamline processes for our facilities. The Notice of Intent (NOI) which is the method by which we reapply for the permit, was due February 1, and was completed and sent as of January 14.

R8 & Coleman NFH staff visit

On November 12, 2013 Mark Ahrens gave a tour of Spring Creek spawning facilities, and fish ladder to FWS colleagues from Region 8's Sacramento Fisheries Office (SFO), Red Bluff Fisheries Resource Office (FRO), and Coleman NFH. Javier Linares is a fisheries program coordinator from the SFO, and Laurie Earley and RJ Bottaro are fishery biologists from the Red Bluff FRO - Anderson Field Office. Scott Hamelburg - Project Leader, and Brett Galyean - Deputy Project Leader from Coleman NFH were present as well. They were on a research tour to explore ideas for a very complex fish management predicament they need to find a solution for. They need to pass endangered fish by the hatchery weir and retain all hatchery fish. However, the weir blocks the river and minimal handling of the listed fish is a priority. So they were exploring the ideas around our coded-wire tag detector systems and are working with Northwest Marine Technology to develop a solution fit for their specific application. They visited Little White Salmon NFH as well, in addition to several other state facilities both in Oregon and Washington in hopes of obtaining enough ideas with which to successfully adapt to their situation.

Construction/Capital Improvements

Safety Fencing Installed

On December 19, 2013 James Steward of Cowlitz Fence Co., the sub-contractor for Five-Rivers Construction was awarded the project to install fencing around our rearing ponds. Beginning on January 22 and then throughout the month of February, they gradually installed the fencing around our rearing ponds. The severe weather events through January forced several changes in scheduling. By February 28 the last panels were being installed and the whole project came together nicely, although slowly. There were a lot of logistic needs to address regarding all types of fish-work on and in the ponds throughout the year, and visitor viewing accessibility. This design will provide gated entry on each side of all 44 ponds, close viewing at the fish ladder and ponds at the far ends of each bank. Each panel is also removable for access for fish-marking, cleaning equipment and surplussing of adult salmon. The project cost was $98,178.

Lagoon Pump Impeller Replacement

After several years of successful system upgrading to water pumping systems at Spring Creek from 2009-2011, one remaining item that needed to be addressed was the lagoon pumps that reside near the hatchery entrance. In 2009 when the majority of hatchery production water pumps and motors were replaced these were identified but did not get replaced at that time. The following year in 2010 we were able to address replacing those as well. The new soft-start electronic controls, infrared level sensors and new electric motors that were replaced are outstanding. However, at the time the impellers provided by the contractor (Schlecht Construction) were never satisfactory. After six months of trouble-shooting it was finally necessary reinstall the original rebuilt impeller assemblies. They were not up to specification for pump volume, and clogged within days of installation every time they were tested. The

reinstalled original pumps/impellers had been rebuilt by Northwest Pump of Portland, OR in 2009, and still worked very well. They could handle water and debris as needed, and we requested that the new impellers also be capable of passing debris that makes its way there such as leaves and pine needles.

Finally addressing those aging and critical rebuilt pump impellers and the need for replacement was a priority last year. Customer service calls from Bob Ulrich of Northwest Pump mid-summer last year lead to discussions about these. He was quite confident that although obscure and hard to find, that impeller style still existed and was either available as a special order with a long lead-time to build them, or could be copied and made to exact replacement. A scope of work was created and we worked with Contracting and General Services to advertise the job of replacement. It was won by Northwest Pump with a bid of $50,058 and awarded on August 16. On February 11, 2014 Northwest Pump Inc. completed work replacing them. We will retain the removed rebuilt impellers for spare parts. The shiny new brass impellers are pictured here.

Youth Conservation Corps

We continued our relationship with the Youth Conservation Corps and the Forest Youth programs, who both returned to help with weed management on the trails located on the stations entrance road, and helped with refilling oyster shells to our filter beds. Our remaining stockpile from two years ago was completely used, helping us to prolong the need to add more oyster shells to our filter beds in the future.

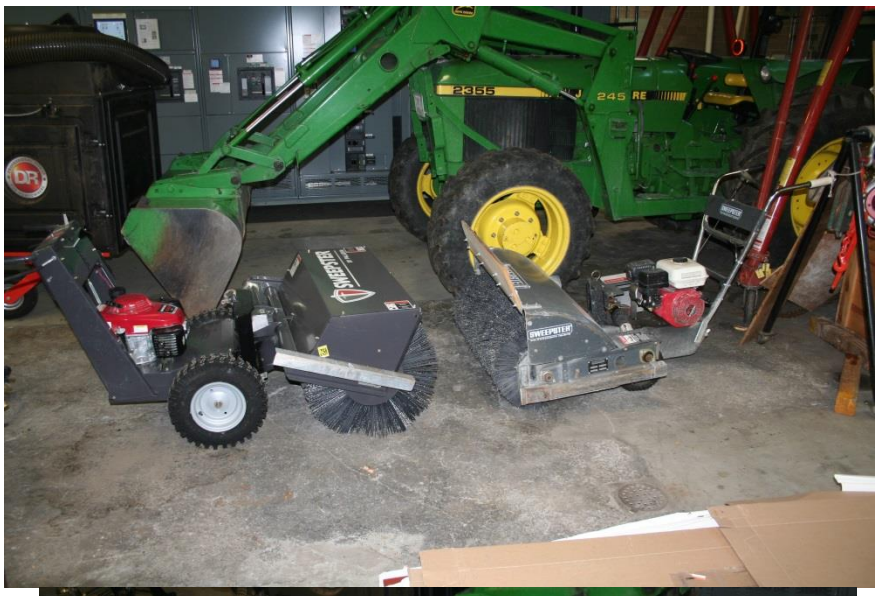
Spring Collection site decking replaced

All spring box covers were removed, rebuilt and replaced as well. Many of the covers were over 30 years old and many that were rotten needing need extra effort for removal. The entire team did a great job in creating new covers, painting and

weatherproofing for increased longevity and use. We hope they will last for another 30 years.

Pond cleaning Sweepster replaced

A new Sweepster, motorized walk-behind broom, was purchased and picked up this summer. The purchase of this broom will help our employees clean the ponds post adult holding, and smolt release. The old Sweepster is nearing the end of its service life and beginning to show the heavy wear and needed to be replaced. It will continue to be of service as a second unit as well as a backup. Having two walk-behind brooms will also expedite the cleaning process, allowing two teams to work simultaneously. We look forward to being more efficient in cleaning our rearing ponds, with less physical demands on our employees. Timelineness of system cleanout and disinfection is critical to summer operational needs and assistance to the rest of the Complex and various planned upkeep projects that are pursued in the period without fish on-station. It can take several weeks to accomplish this process and equipment problems can unnecessarily delay the effort. The equipment cost was $3,828.



Fish Ladder PIT tag data computer replaced

A request was received last winter by the Fisheries Program Office in Vancouver, WA to search for alternative methods for connection of our PIT antenna transceiver and computer for uploading data to the PIT Tag Information System (PTAGIS). A thorough and challenging investigation was conducted into whether a phone line or data line would be best for replacing the functionally limited cellular AIR-card that was used for the previous return years. After considering the pros and cons of a hardline phone connection versus a wireless point-to-point system, the latter was chosen as the best option to then connect to the existing T-1 internet access line for the hatchery. The computer connected to the transceiver needed to be upgraded and replaced to meet network requirements for connection to the DOI network, and a scientific exemption was granted, allowing us to connect the computer without causing problems to the MiniMon software and system update/restart schedule, which may have caused problems with detecting and uploading the data. The system was up and running, transmitting and receiving data for the 2014 return.

Ponderosa Pines killed with native and non-native beetle infestation

Many trees on the hatchery property were beginning to show signs of beetle infestation in fall of 2013 and winter 2014, or were already dead from pine beetles. A survey was completed by hatchery employees to identify hazard trees and to prioritize trees that needed to be removed. A work request was then drafted using this survey, and the trees were scheduled for removal in September 2014.

On September 15 that project began with Columbia Tree Services contracted for the work with the initial bid for work at $19,829. This project had become a necessity as pine beetles have killed many trees on the hatchery grounds, some of which were becoming hazards and needed to be removed. In future years more work like this will likely be necessary. In total over 15 trees were removed. Two extremely large trees were serviced at the hatchery housing, removal of one of them required precision falling in order to avoid property damage, and proved to be an elaborate show. The largest one required removal for disposal by logging truck. Between the time of writing the proposal and completing the work, several more trees died from beetle infestation and were added to a contract modification to remove them as well for another $9,500 on the contract for a total of $29,329 spent. Within the contract we also requested the best and only beetle-kill prevention option which is a specialized pheromone-pack that can be attached to the surviving trees and hopefully mitigate future die-offs with this low-cost option. It will be necessary to replace those with new ones each year but at a low cost of approximately $10 each we can easily maintain that approach and minimize further losses until the beetle issue subsides.

Quarters Maintenance Projects

A combined hatchery quarters project kicked off September 3rd. The project consisted of extensive major and minor issue rehab, installing egress windows, carpet, remodeling, and painting. The project included work at three Spring Creek houses, one at LWS, and three at Willard and carried into the middle of December before final wrap-up of punch-list items. The combined facility project scope was prepared in order to increase efficiency with the whole process of contracting. It was yet another multi-station project that helped achieve broader goals with

strategic planning and coordination. It served as another learning process upon which to improve with future projects.

Some of the highlights of the work done at Spring Creek are pictured including the upstairs hardwood floor renovation and bedroom windows for quarters #2 and #5 (the two brick houses to the west) which were identified as out-of-spec for egress purposes. That safety deficiency was one of many priorities addressed in this project. These two houses also received improved basement windows that are now satisfactory as egress routes, creating the flexibility of offering a third bedroom option for use rather than limiting these houses to 2-bedroom, 1-bathroom. Since Quarters #2 was vacant it was able to receive hardwood floor renovation throughout, full painting, heating system vent repairs, as well as kitchen and bathroom cabinet and counter repairs and replacements as needed.

Quarters Moves

On January 15, 2014 Debbie Hogberg vacated hatchery quarters #2 after completion of her new home in Husum. Her departure cleared the way for the long-awaited rehab project mentioned above that was planned for quarters #2. Mat Maxey, the Spring Creek staff-biologist, moved from quarters at Little White Salmon into this residence here at Spring Creek once it was ready. His presence puts all four Spring Creek houses in occupied status, with each employee resident a qualified hatchery alarm-responder.

Production Summary Tables

HATCHERY PRODUCTION SUMMARY (INTENSIVE CULTURE) - BY2013 (released 2014)

Station: Spring Creek National Fish Hatchery						**Period Covered:** October 1, 2013		**Through:** September 30, 2014		
Species/Strain and Stock	**Fish on Hand Last Day of Period**					**To Date This Fiscal Year**				
	Number	**Weight**	**Length**	**D.I.**	**F.I.**	**Weight Gain**	**Feed Expended**		**Conversion**	**Percent Survival**
							Pounds	**Costs**		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
FCS-SCW-13-SPC-78						94,131	82,734	$108,424	0.96	97.25
Totals/Averages						94,131	82,734	$108,424	0.96	97.25

FISH AND FISH EGG DISTRIBUTION SUMMARY BY2013

Station: Spring Creek National Fish Hatchery				**Period Covered:** October 1, 2013		**Through:** September 30, 2014
Species	**Fish or Fish Egg Number**	**Fish**		**Management Area**	**State**	**Agency**
		Total Weight	**Length**			
1	**2**	**3**	**4**	**5**	**6**	**7**
FCS-SCW-13-SPC-78	1,600	1	EE	I&E	WA	Various Local Area Schools
Fry and Eyed Eggs for	165	2	3.2	I&E	WA	Life Stage Displays
Research and Other Uses	180	2	3.1	Columbia River	WA	LCRFHC - Pre Release Exam
"	3,739	39	3.2	Columbia River	OR	NMFS @ Bonneville SFH
"	5,000	47	3.1	Columbia River	WA	USGS - Cook Labs
Releases or Transfers	3,001,840	1,700	EE	Columbia River	OR	ODFW - Bonneville SFH
"	1,816,247	10,379	2.55	Columbia River	OR	ODFW - Bonneville SFH
"	6,169,418	52,730	3.05	Columbia River	WA	USFWS - April Release
"	4,585,064	52,702	3.36	Columbia River	WA	USFWS - May Release

RELEASE CONDITIONS FOR FISH HELD IN PRODUCTION PONDS ONLY - BY2013 (released 2014)

Release Group	Date	Avg. Length	Total Released	Index Marked	Other Marks	River Temp (F)
Bonneville SFH Transfer	5-Mar	2.55	1,816,247	200,210 Ad/CWT	100% Ad-clipped	N/A
April	11-Apr	3.05	6,169,418	207,122 Ad/CWT 205,548 CWT only	100% Ad except Double Index (CWT only)	48
May	6-May	3.36	4,585,064	199,452 Ad/CWT 199,131 CWT only		52

SURPLUS WILD BROODSTOCK DISTRIBUTION – Return Year (RY) 2014

Station: Spring Creek National Fish Hatchery		**Period Covered:** October 1, 2013		**Through:** September 30, 2014		
Species/Strain and Stock	**Transfer Destination**	**Distribution of Fish**			**Total Number of Fish**	**Remarks**
		Females	**Males**	**Jacks**		
1	**2**	**3**	**4**	**5**	**6**	**7**
FCS-SCW-14-SPC-79	Forked Tree Ranch	2,871	1,958	3,095	7,965	41 Other Spp. Transferred
	Northwest Harvest – via Am-Can	8,531	5,659	6,442	20,749	117 Other Spp. Transferred
	Warm Springs - Hood River	68	82	94	244	
Totals/Averages		11,470	7,699	9,631	28,958	(158 Other Spp.)

SURVIVAL PERCENTAGES - BY2013

Green To Eyed Egg:	94.6%	**Eyed Egg To Ponding:**	97.1%	**Ponding To Release:**	97.3%

FISH HEALTH ACTIVITIES SUMMARY - BY2013

Station: Spring Creek National Fish Hatchery		**Period Covered:** October 1, 2013	**Through:** September 30, 2014
Problem/Incident/Activity **1**	**Species** **2**	**Therapeutic Treatment** **3**	**Results/Comments** **4**
N/A	N/A	N/A	No fish health problems to note in rearing
			of FCS-SCW-13-SPC-78

INCIDENCE OF DISEASE IN ADULTS – RY/BY2014

Pathogen	Males (60 Sampled)	Females (150 Sampled)
Infectious Hematopoietic Necrosis (IHN)	0	1
Infectious Pancreatic Necrosis (IPN)	0	0
Viral Hemorrhagic Septicemia (VHS)	0	0

INCIDENCE OF DISEASE AT RELEASE BY2013

Pathogen	Number Sampled	Incidence
Renibacterium salmoninarum (RS)	30	0
Yersinia ruckeri (YR)	30	0

CHEMICAL USE SUMMARY

Station: Spring Creek National Fish Hatchery		**Period Covered:** October 1, 2013	**Through:** September 30, 2014
Chemical	**Purpose**	**Total Amount Used**	**Total Cost**
Chlorine	Disinfection	622 Gal.	$1,403
Iodophor	Disinfection	825 Gal.	$17,073
MS-222	Anesthetic	6.0 Kg	$2,994